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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,589

07/22/2004

Tadashi NAKATANI

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EXAMINER

ROJAS, BERNARD

ART UNIT

PAPER NUMBER

2832

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/710,589	<b>Applicant(s)</b> NAKATANI ET AL.	
	<b>Examiner</b> BERNARD ROJAS	<b>Art Unit</b> 2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 7-9, 11-14, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-9, 11-14, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 02/27/2008 have been fully considered but they are not persuasive.

Applicant states that Aigner et al. fails to disclose the claimed limitations of claim 10, therefore claim 10 has been incorporated into claim 7 to make amended claim 7 allowable.

In response, Aigner et al. discloses that the stationary member includes a stationary island part [20] that is connected to the base substrate [1, figure 1 - 20 is connected to 1 via 2 and 11]. Aigner et al. discloses the claimed invention except for constructing the stationary island part [20] into various spaced apart islands. It would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the isolative layer 20 into separate portions instead of a single layer, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9, 11-14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aigner et al. [US 6,734,770] in view of Yao [US 5,578,976].

Claim 7, Aigner et al. discloses a micro-switching device comprising a base substrate [1]; a movable portion [9] including an anchor part [4] and an extending part, the anchor part being connected to the base substrate, the part extending from the extending anchor part and facing the base substrate; wherein the extending part comprises a body having an electrode carrying surface [21,22] on a side opposite to the base substrate; a stationary member [2, 11] connected to the base substrate; a movable contact conductor [71, 72] provided on the electrode carrying surface of the extending part; a first stationary contact electrode [31a, 32a] connected to the stationary member and including a first contacting part facing the movable contact conductor; a second stationary contact electrode [31b, 32b] connected to the stationary member and including a second contacting part facing the movable contact conductor [figures 1 and 2]; and a first driving electrode [6] on the movable portion wherein the stationary

member includes a stationary island part [20] that is connected to the base substrate [1, figure 1 - 20 is connected to 1 via 2 and 11].

Aigner et al. discloses the claimed invention except for constructing the stationary island part [20] into various spaced apart islands. It would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the isolative layer 20 into separate portions instead of a single layer, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Aigner fails to teach that the first driving electrode is formed on the electrode carrying surface of the extending part separately from the body of the movable portion.

Yao discloses a MEM switch with a first driving electrode [24] formed separately from the body [20] of the movable portion of the cantilever, located on the surface of the cantilever arm that is opposite the substrate [12].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the first driving electrode of Aigner separately from the body of the movable portion and located on the cantilever arm surface that is opposite the base substrate as shown by Yao, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Claim 8, Aigner et al. discloses the micro-switching device according to claim 7, wherein the stationary member is spaced away from the movable portion [figures 1 and 2].

Claim 9, Aigner et al. discloses the micro-switching device according to claim 7, wherein the stationary member surrounds the movable portion [figure 1].

Claim 11, Aigner et al. discloses the micro-switching device according to claim 7, further comprising a second driving electrode [53, 54] connected to the stationary member and including a section facing the first driving electrode [figure 3].

Claim 12, Aigner et al. discloses the micro-switching device according to claim 7, wherein the extending part is made of monocrystalline silicon [col. 3 line 62 to col. 4 line 10].

Claim 13, Aigner et al. discloses the claimed invention except for the thickness of the contact electrode. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the thickness of the contact electrode to minimize signal distortion depending on the voltage and/or frequency of the signal. Since applicant has not disclosed that a contact electrode thickness of at least 5 micrometer solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well as taught by Aigner et al.

Claim 14, Aigner et al. discloses the claimed invention except for the thickness of the extending part. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the thickness of the extending part in order to change the spring characteristic/response time/opening force [i.e. thick = slower response time and greater opening force, smaller equals faster actuation time and small opening force] of the moveable part. Since applicant has not disclosed that a extending part thickness of at least 5 micrometer solves any stated problem or is for any particular

purpose and it appears that the invention would perform equally well as taught by Aigner et al.

Claim 17, Aigner et al. discloses the micro-switching device according to claim 7, further comprising a second driving electrode [53, 54] connected to the stationary member [11, see figure 4] and including a section [top portion of the electrodes, see figure 3] facing the first driving electrode, said section of the second driving electrode being spaced from the base substrate on a same side as the first driving electrode relative to the base substrate [figure 3].

Claim 18, Aigner et al. discloses the micro-switching device according to claim 17, wherein said section [top portion of the electrodes, see figure 3] of the second driving electrode facing the first driving electrode is farther from the base substrate than an adjoining section [the bottom portion which attaches to frame 11 or the side wall portions which project up from 11] of the second driving electrode that is not facing the first driving electrode [figure 3].

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BERNARD ROJAS whose telephone number is (571)272-1998. The examiner can normally be reached on M and W-F, 5:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Elvin G Enad/  
Supervisory Patent Examiner, Art Unit 2832

Br  
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